

b) Find the value of:

(i)  $\lim_{n \rightarrow 1} \frac{1-n^{1/3}}{1-n^{2/3}}$

(ii)  $\lim_{n \rightarrow 0} \frac{\sqrt{1+n} - \sqrt{1-n}}{n}$

Q8/ a) Find the derivative of:

(i)  $\log n$  (ii)  $\tan^{-1} n$

b) Integrate

(i)  $n^3 + \tan n + e^{an}$  (ii)  $\sin^{-1} n + \cos n + 1$

Q9/ a) Simplify:

$P + \{ [P \cdot (P+Q)] + (Q \cdot R) \}$

b) Simplify

$(P+Q)' \cdot (Q+R)'$

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$$\frac{(\sqrt{1+n})^2 - (\sqrt{1-n})^2}{n(\sqrt{1+n} - \sqrt{1-n})}$$

$$\frac{1+n - 1-n}{n(\sqrt{1+n} - \sqrt{1-n})}$$

$$P + \{ P \cdot (P+Q) \}$$

$$(P+Q)' \cdot (Q+R)'$$

$$P' \cdot Q' \cdot Q' + R'$$

$$Q'$$

$$e^{\frac{1}{n}} = 1$$

$$a'' = \frac{1}{n^2}$$

$$\frac{1}{3} \cdot \frac{1}{3} = \frac{1}{9}$$

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